were therefore disappointed that no mention was made of the use of mithramycin in the management of hypercalcaemia in these patients, as the following case illustrates.

A 53-year-old woman was admitted to hospital with a nine-month history of bone pain. Bence Jones myeloma was diagnosed on the basis of a marrow aspirate, "K" type light chains in the serum, and "K" type Bence Jones proteinuria. On admission she was dehydrated, with nausea and vomiting. Serum calcium was 3·8 mmol/l (15·2 mg/100 ml), serum phosphate 1·4 mmol/l (4·5 mg/100 ml), and blood urea 15·4 mmol/l (93 mg/100 ml). A skeletal survey showed widespread lytic bone deposits. The hypercalcaemia was treated initially with intravenous saline infusions of 3 l/day with potassium chloride supplements, restriction of dietary calcium, and hydrocortisone infusions of 100 mg six-hourly (later substituted with prednisolone 45 mg/daily once vomiting had stopped). Treatment for myeloma was started with cyclophosphamide 50 mg/daily. None of this therapy made any significant impression on the hypercalcaemia (fig. 1). The patient was therefore given a single intravenous injection of mithramycin 1 mg. This was well tolerated without side effects. The serum calcium fell rapidly within 24 hours to 2·9 mmol/l (11·8 mg/100 ml) around which it remained for five days before rising again (fig. 1).

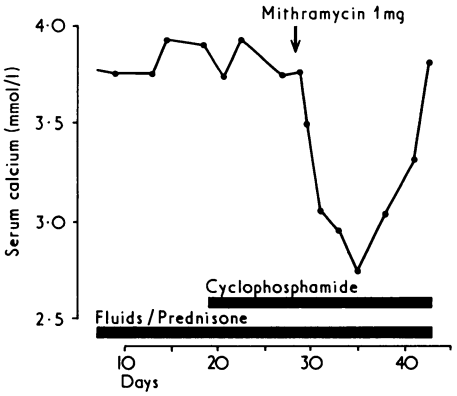

FIG. 1.—Response of hypercalcaemia to therapy in a 53-year-old woman with myeloma.
Conversion: SI to Trdaitional Units—Serum calcium 1 mmol/l ≃ 4 mg/100 ml.

We have also used mithramycin successfully in the treatment of hypercalcaemia associated with breast carcinoma and lymphoma. Like others,[2 3] we have found the response in all instances to be rapid, effective, and maintained for four days or longer after a single intravenous injection of 20 μg/kg (1-1·5 mg total dose) (fig. 2). In our experience it is unnecessary to repeat the therapy for at least four days, and at this dosage (about one-fifth to one-tenth of the recognized antitumour dose) significant marrow depression and a dose-related haemorrhagic syndrome[4] do not occur. Mithramycin probably corrects hypercalcaemia by inhibiting excessive bone resorption and is therefore unlikely to cause metastatic calcification.[5]

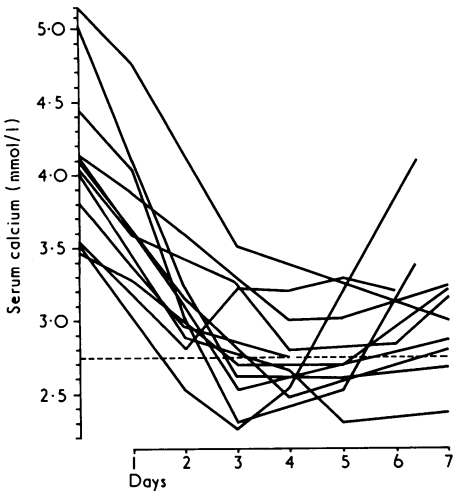

FIG. 2.—Effect of single intravenous injection of mithramycin 20 μg/kg in 12 episodes of hypercalcaemia associated with malignancy.

We therefore think that the rapid, effective, and prolonged action of mithramycin on serum calcium with absence of side effects in correct dosage makes it the treatment of choice in hypercalcaemia associated with myeloma and other malignant conditions in which dietary restriction, fluids, and prednisone alone prove ineffective.—We are, etc.,

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2 Perlia, C. P., *et al.*, *Cancer*, 1970, **25**, 389.
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Management of Lithium Treatment

SIR,—We are surprised at the nature and content of Dr. J. L. Crammer's letter (16 November, p. 408). The original subject of our discussion was the practical management of lithium treatment; it seems irrelevant to widen the controversy by including a separate issue—namely, the extent of lithium excretion following discontinuation of the drug. Since the subject has been raised, it is necessary for us to reply.

Dr. Crammer saw fit to refer to his failure to confirm previous findings from this unit[1] that some patients, previously treated with lithium, excrete small amounts of the cation in the urine at intermittent intervals after the drug has been discontinued. We agree that metabolic balance work over long intervals is difficult to control, especially in psychiatric patients, and that continuity of trained and experienced nursing staff in adequate numbers is essential as Dr. Crammer rightly insists. However, we are satisfied that the results obtained were not due to artefacts for the following reasons. (1) Lithium appeared in the blood plasma as well as in the urine during some of these episodes, thus excluding contamination of urine by patients or staff of the kind to which Dr. Crammer refers. (2) The possibility of unauthorized ingestion of lithium salts by the patients was meticulously investigated after the initial findings and careful precautions were taken to exclude this possibility. Nevertheless, a number of further cases of intermittent lithium excretion occurred even under these very rigorous conditions. (3) The total amount of lithium excreted in each discrete episode, though significant, was not compatible with the ingestion of a single dose of aqueous lithium citrate (8 mmol (mEq)) which was the form in which the lithium was being administered in our balance studies; nor was it compatible with the amount of lithium in the smallest tablet commercially available.

We believe that the results are genuine and probably occur as a result of bone resorption, since it has been shown that lithium accumulates in bone[2] and that one fraction is tenaciously retained within the bone after discontinuation of treatment.[3]

Dr. Crammer also questions our findings that some subjects taking slow-release lithium carbonate tablets have larger amounts of lithium in their stools than we previously reported when aqueous lithium salts were administered.[1] The results of our investigation in 20 subjects (patients and normal volunteers) reported in preliminary form[4] will be published with full details of the kind desired by Dr. Crammer. This study involved the oral ingestion of a single 1-g dose of various commercial lithium carbonate tablets by subjects who had either never received lithium previously or had not done so for at least one month. The plasma and urinary excretion patterns of lithium were determined for the following 24 hours and faeces collected for periods of 1-8 days. The percentage of the lithium dose recovered in the faeces varied from 5 to 33% for Phasal, 1 to 6% for Priadel, and 5 to 7% for Camcolit. The subjects with high values of faecal lithium excretion on Phasal showed low plasma and urinary lithium concentrations, indicating incomplete lithium absorption.

Dr. Crammer and his colleagues (14 September, p. 650) have clearly shown that delaying stomach emptying time affects the absorption of lithium and we accept that gastrointestinal function influences the plasma lithium level. Our point is that the two "sustained-release" preparations used in Britain (Priadel and Phasal) do not work as they imply (p. 652) by preventing absorption in the acid conditions of the stomach and allowing release in the more alkaline conditions of the small intestine. Priadel and Phasal both consist of lithium carbonate embedded in an inert matrix and their "sustained-release" properties are based on the slow dispersion of the matrix, largely *irrespective* of the pH of the surrounding solution. This statement is based on the manufacturers' information about their tablets, not on our in vitro work, which we agree may not necessarily correspond with the situation in the body. We hope this has clarified the issues.—We are, etc.,

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1 Hullin, R. P., *et al.*, *British Journal of Psychiatry*, 1968, **114**, 1561.
2 Birch, N. J., and Hullin, R. P., *Life Sciences*, *p. 2*, 1972, **11**, 1095.
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Clonazepam in the Treatment of Drug-induced Dyskinesia

SIR,—In a report on a clomipramine infusion unit[1] I described the use of diazepam as a method of controlling the dyskinesia produced in patients given the infusion in doses of 150-200 mg. The diazepam was effective but had very definite drawbacks, as frequently the oral dose had to be raised to 10 mg three times a day so that they became drowsy and dulled.

Recently clonazepam has been introduced for the treatment of epilepsy[2 3] and reports in

the literature have confirmed its efficacy in various types of convulsive disorder. As clonazepam is chemically related to diazepam, in October 1973, we started administering it orally to patients in place of diazepam to control the dyskinesia. Up to the present 42 patients have been given the drug in doses varying from 0·5 mg twice daily to 1 mg three times daily and without exception there has been a distinct improvement in the condition, without drowsiness and without the anxiety which was sometimes associated with the dyskinesia, as patients found they frequently could not do their household tasks owing to the trembling of their hands.

The use of clonazepam has not been reported elsewhere in the literature in this condition, but its efficacy is so marked that I consider that the attention of others using drugs which produce dyskinesia should be drawn to the possible value of this drug for its control as well as for epilepsy.—I am, etc.,

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1 O'Flanagan, P. M., *Journal of International Medical Research*, 1973, 1, 375.
2 Bladin, P. F., *Medical Journal of Australia*, 1973, 1, 683.
3 Parsonage, M., *British Journal of Hospital Medicine*, 1973, 9, 613.

Geriatric Policies

SIR,—Dr. G. R. Burston's letter (14 December, p. 652) is interesting for many reasons. (1) He implies that elderly people are sent into hospital to enable the general practitioner, the home help, and the district nurse to escape from them. (2) He appears to expect that frail old people whom he has rehabilitated will never break down again. (3) When they do break down he does not consider them to be genuine medical patients.

In my own view the geriatrician gears his unit not only to diagnose multiple pathologies and rehabilitate the helpless but also to deal with the recurrent needs of the physically inadequate. The geriatric unit, with its extensive day hospital service, intermittent admission regimens, holiday admissions, even in some cases one week in and four weeks out, should have an infinite variety of functions for dealing with infinitely varying needs. The key, however, must be for it to have as its prime function the admission of the maximum of medical and social emergencies in old age from the district.

It is the geriatric admission which is wrongly admitted to the medical unit and becomes "chronicized" owing to lack of skilled rehabilitation which can overcome the facilities of the geriatric unit to deal with it. No geriatric unit, however, efficient, can admit vast numbers of long-stay chronic cases from other hospitals. However, if the geriatric unit, as in Sunderland and elsewhere, has a high admission rate of acute geriatric problems from the district the number of geriatric patients admitted to medical wards will inevitably lessen, as will the demand for long-stay geriatric beds.

Dr. Burston mentions pairs of hands. It is impossible to over-emphasize the importance of the home help. Money spent in this area will bring a decreased demand on geriatric services. Many of my patients are admitted unnecessarily into hospital when the home help becomes ill or even during a prolonged Christmas holiday. Similarly shortages of hostel accommodation will be reflected in an increased demand on hospital beds.

Within the hospital itself staff shortages, particularly nursing staff and rehabilitation staff in the form of occupational therapists and physiotherapists, will be reflected in a decreased through-put through the unit, and here again there must be adequate financial incentives for recruitment, particularly in physiotherapy and occupational therapy. The tremendous pressure upon consultant geriatricians cannot be overestimated. To satisfy the ever-increasing needs of this vulnerable area of the population adequately demands not only a high degree of diagnostic skill on the part of the geriatrician but also management expertise, including the ability to motivate his team of nurses and rehabilitationists and maintain their unflagging enthusiasm.

It is inevitable, however, that most geriatricians on a difficult day must feel as Dr. Burston does, particularly on a Monday morning when the admission ward appears full of a new intake of completely helpless, confused, and incontinent new admissions. It is, however, amazing how, by the following week, they appear to be sorted out and many well on the way to recovery and discharge.—I am, etc.,

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Distribution and Supervision of Oral Contraceptives

SIR,—A four-year association with the Family Planning Association as clinic medical officer has confirmed the initial impression that the F.P.A. is a body which (1) has accumulated over the years a very considerable expertise; (2) has run excellent training courses; and (3) has shown a responsible attitude in all matters concerning family planning in the widest sense.

The letter from Dr. M. V. Smith and others (19 October, p. 161) which advocates widening "the range of those empowerd to dispense oral contraceptives to include state registered nurses, midwives, and health visitors who have had some additional training in contraceptive practice" can be regarded as in line with the above tradition, since it also recognizes that the oral contraceptive is a "relatively powerful" drug and suggests that doctors should continue to supervise the service and that in order that the user of any method of contraception should have the fullest possible confidence in that method "any woman who wishes to see a doctor when starting oral contraceptives or during their use should continue to do so."

It is important, however, if these ideas should be implemented, that the expertise should not be too diluted and that the standard of care should not be allowed to fall. One can imagine that experienced F.P.A. nurses might require only small additional training, since many have become accustomed to a degree of delegation and are also already familiar with other forms of contraception which might be more appropriate in a particular case. For other non-doctor health personnel an adequate theoretical and practical training is essential and should include practical sessions, with an experienced doctor and preferably in a family planning clinic, for an adequate period of time—for example, weekly for three months.

Women in this country are entitled to the continued availability of at least the present standard of care. It must be remembered that the pill is a hormone preparation and therefore still remains potentially dangerous if used wrongly or in inappropriate cases.—I am, etc.,

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Community Hospitals

SIR,—That nursing staff would be difficult to recruit into local hospitals if they were used predominantly for elderly people is repeatedly put forward as a powerful argument against their use along the lines suggested by the Department of Health and Social Security.

The evidence is to the contrary. Throughout the country there are scores of peripheral geriatric hospitals, full of elderly people, staffed by local nurses, and supervised by general practitioners. These hospitals have all had their difficulties and they sometimes represent the worst type of accommodation, but they have seldom closed because of failure of nurse recruitment.—I am, etc.,

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Screening Procedures for Breast Cancer

SIR,—Perhaps I have missed the vital figures somewhere, but I remain unconvinced that a screening procedure for breast cancer would make necessary the use of one-third of our surgeons working full time (leading article, 7 December, p. 549).

I may be wrong but I would like to suggest that this is one of those situations where doctors are apparently failing to see that it does not need a fully-trained surgeon at every stage to screen and rule out large numbers of well patients. I believe that many women delay taking medical advice about possible cancer at an early stage for a number of reasons which are basically pychological and that a new system should be devised to make routine checks much simpler and less anxiety-making. Properly designed, such a system could save many lives at far less cost to the nation than present methods. These often result in treatment being sought too late so that highly trained surgeons and expensive hospital treatment have to be used, often unfortunately to no avail.—I am, etc.,

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Drugs for Addicts

SIR,—I am most concerned about drugs for registered addicts. It may not be generally known, but when a drug addict is registered